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CLAIMS

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is as follows:

1 1. A hardware Object Request Broker (ORB) on a
2 chip for controlling data transfer between embedded
3 resources in a device, comprising:
4   first integrated circuit means for separating
5 a functionality of said ORB into a control
6 interface and a data interface, said ORB
7 functionality enabling a software object resident
8 on a general purpose processor of said device to
9 transfer data between said embedded resources,
10 there being a control interface and a data
11 interface for each of said object and each of said
12 embedded resources;
13   second integrated circuit means for
14 constructing said control interfaces within said
15 general purpose processor of said device;
16   third integrated circuit means for
17 constructing said data interfaces for said embedded
18 resources outside said general purpose processor,
19 such that said data transfer, under control of said
20 object exercised through said second integrated
21 circuit means, occurs directly between said
22 embedded resources without going through said
23 general purpose processor.

1 2. A hardware Object Request Broker (ORB) on a
2 chip as in claim 1, wherein said respective control
3 interfaces for each of said embedded resources are

4   implemented using device drivers of said respective
5   embedded resources.

1   3. A hardware Object Request Broker (ORB) on a
2   chip as in claim 1, wherein said respective data
3   interfaces for each of said embedded resources are
4   each connected to a switch matrix, said switch
5   matrix being external to said general purpose
6   processor and serving to connect said embedded
7   resources.

1   4. A hardware Object Request Broker (ORB) on a
2   chip as in claim 3, wherein said switch matrix is
3   implemented as a connection fabric.

1   5. A hardware Object Request Broker (ORB) on a
2   chip as in claim 3, wherein said switch matrix is
3   implemented as a shared memory.

1   6. A hardware Object Request Broker (ORB) on a
2   chip as in claim 1, wherein said device is a
3   software defined radio, said given system is the
4   Joint Tactical Radio System, and said ORB is
5   compliant with Software Communications Architecture
6   (SCA).

1   7. A hardware Object Request Broker (ORB) on a
2   chip as in claim 3, wherein one of said embedded
3   resources is a Field Programmable Gate Array
4   (FPGA).

1   8. A hardware Object Request Broker (ORB) on a
2   chip as in claim 7, further comprising:

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3   fourth integrated circuit means for creating
4   an Interface Description Language (IDL) description
5   of a raw interface of said FPGA;
6   fifth integrated circuit means for generating
7   from said IDL a description of an interface between
8   a core functionality of said FPGA and said switch
9   matrix, and a description of a controller for
10   performing said core functionality; and
11   sixth integrated circuit means for integrating
12   said core functionality interface into said data
13   interface of said FPGA, and integrating said
14   controller into said control interface of said
15   FPGA.